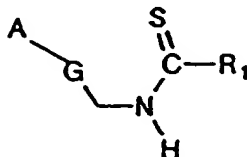


Listing of Claims:

This listing of Claims will replace all prior listings of Claims in this application.

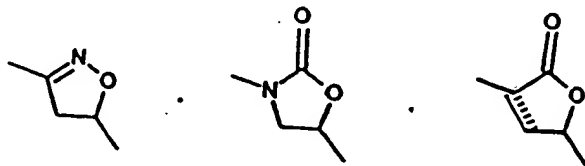
Claim 1. (Currently amended) A method of treating osteoporosis ~~or bone resorption~~ in a vertebrate mammal in need thereof comprising the administering to the vertebrate mammal an effective amount of compound of formula I .



I

or pharmaceutical acceptable salts thereof wherein:

G is

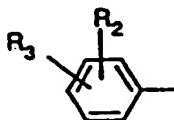


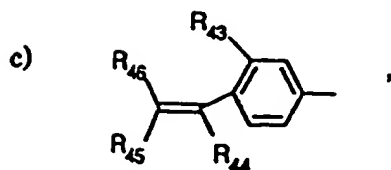
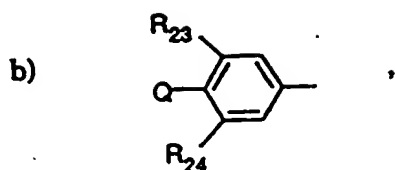
R₁ is

- a) H,
- b) NH₂,
- c) NH-C₁₋₄ alkyl,
- d) C₁₋₄ alkyl,
- e) -OC₁₋₄ alkyl,
- f) -S C₁₋₄ alkyl,
- g) C₁₋₄ alkyl substituted with 1-3 F, 1-2 Cl, CN or -COOC₁₋₄ alkyl,
- h) C₃₋₆ cycloalkyl,
- i) N(C₁₋₄ alkyl)₂ or
- j) N(CH₂)₂₋₅,

A is

a)





d) a 5-membered heteroaromatic moiety having one to three atoms selected from the group consisting of S, N, and O, wherein the 5-membered heteroaromatic moiety is bonded via a carbon atom,

wherein the 5-membered heteroaromatic moiety can additionally have a fused-on benzene or naphthyl ring,

wherein the heteroaromatic moiety is optionally substituted with one to three R₄₈,

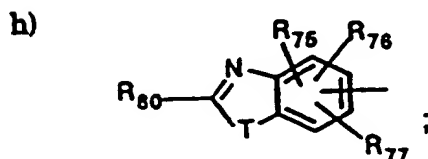
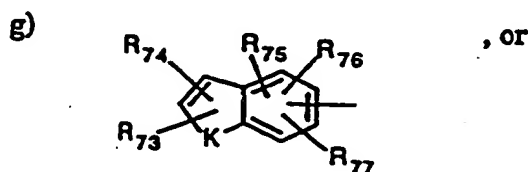
e) a 6-membered heteroaromatic moiety having at least one nitrogen atom,

wherein the heteroaromatic moiety is bonded via a carbon atom,

wherein the 6-membered heteroaromatic moiety can additionally have a fused-on benzene or naphthyl ring,

wherein the heteroaromatic moiety is optionally substituted with one to three R₅₅,

f) a β -carbolin-3-yl, or indolizinyI bonded via the 6-membered ring, optionally substituted with one to three R₅₅,



wherein R_2 is

- a) H,
- b) F,
- c) Cl,
- d) Br,
- e) C_{1-3} alkyl,
- f) NO_2 , or
- g) R_2 and R_3 taken together are $-O-(CH_2)_n-O-$;

R_3 is

- a) $-S(=O)_i R_4$,
- b) $-S(=O)_2-N=S(O)_j R_5 R_6$,
- c) $-SC(=O)R_7$,
- d) $-C(=O)R_8$,
- e) $-C(=O)R_9$,
- f) $-C(=O)NR_{10}R_{11}$,
- g) $-C(=NR_{12})R_8$,
- h) $-C(R_9)(R_{11})-OR_{13}$,
- i) $-C(R_9)(R_{11})-OR_{13}$,
- j) $-C(R_9)(R_{11})-OC(=O)R_{13}$,
- k) $-C(R_9)(R_{11})-OC(=O)R_{13}$,
- l) $-NR_{10}R_{11}$,
- m) $-N(R_{10})-C(=O)R_7$,
- n) $-N(R_{10})-S(=O)_i R_7$,
- o) $-C(OR_{14})(OR_{15})R_8$,
- p) $-C(R_9)(R_{16})-NR_{10}R_{11}$, or
- q) C_{1-3} alkyl substituted with one or more $=O$ other than at alpha position, $-S(=O)_i R_{17}$, $-NR_{10}R_{11}$, C_{2-6} alkenyl, or C_{2-6} alkynyl;

R_4 is

- a) C_{1-4} alkyl optionally substituted with one or more halos, OH, CN, $NR_{10}R_{11}$, or $-CO_2R_{13}$,

- b) C_{2-4} alkenyl,
- c) $-NR_{16}R_{18}$,
- d) $-N_3$,
- e) $-NHC(=O)R_7$,
- f) $-NR_{20}C(=O)R_7$,
- g) $-N(R_{19})_2$,
- h) $-NR_{16}R_{19}$, or
- i) $-NR_{19}R_{20}$.

R_5 and R_6 at each occurrence are the same or different and are

- a) C_{1-2} alkyl, or
- b) R_5 and R_6 taken together are $-(CH_2)_k-$;

R_7 is C_{1-4} alkyl optionally substituted with one or more halos;

R_8 is

- a) H, or
- b) C_{1-8} alkyl optionally substituted with one or more halos, or C_{3-8} cycloalkyl;

R_9 is C_{1-4} alkyl substituted with one or more

- a) $-S(=O)R_{17}$,
- b) $-OR_{13}$,
- c) $-OC(=O)R_{13}$,
- d) $-NR_{10}R_{11}$, or
- e) C_{1-5} alkenyl optionally substituted with CHO;

R_{10} and R_{11} at each occurrence are the same or different and are

- a) H,
- b) C_{1-4} alkyl, or
- c) C_{3-8} cycloalkyl;

R_{12} is

- a) $-NR_{10}R_{11}$,
- b) $-OR_{10}$; or
- c) $-NHC(=O)R_{10}$;

R₁₃ is

- a) H, or
- b) C₁₋₄ alkyl;

R₁₄ and R₁₅ at each occurrence are the same or different and are

- a) C₁₋₄ alkyl, or
- b) R₁₄ and R₁₅ taken together are -(CH)₁-;

R₁₆ is

- a) H,
- b) C₁₋₄ alkyl, or
- c) C₃₋₆ cycloalkyl;

R₁₇ is

- a) C₁₋₄ alkyl, or
- b) C₃₋₆ cycloalkyl;

R₁₈ is

- a) H,
- b) C₁₋₄ alkyl,
- c) C₂₋₄ alkenyl,
- d) C₃₋₄ cycloalkyl,
- e) -OR₁₃ or
- f) -NR₂₁R₂₂;

R₁₉ is

- a) Cl,
- b) Br, or
- c) I;

R₂₀ is a physiologically acceptable cation;

R₂₁ and R₂₂ at each occurrence are the same or different and are

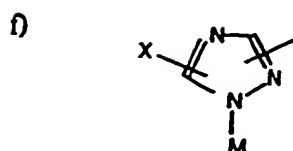
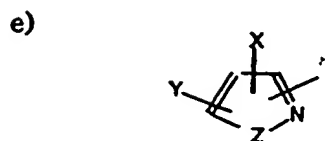
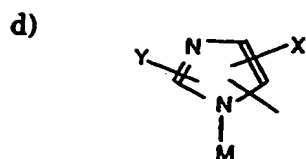
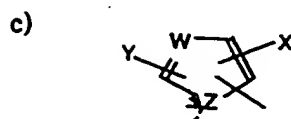
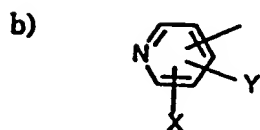
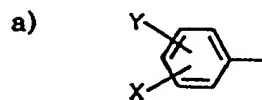
- a) H,
- b) C₁₋₄ alkyl, or
- c) -NR₂₁R₂₂ taken together are -(CH₂)_m-;

wherein R₂₃ and R₂₄ at each occurrence are the same or different and are

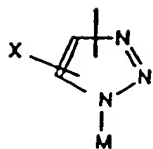
- a) H,
- b) F,

- c) Cl,
- d) C₁₋₂ alkyl,
- e) CN
- f) OH,
- g) C₁₋₂ alkoxy,
- h) nitro, or
- i) amino;

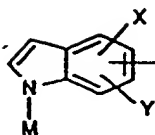
Q is



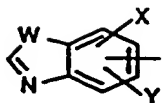
g)



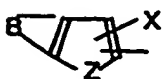
h)



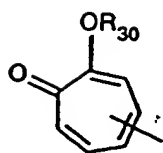
i)



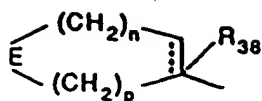
j)



k)



l)



m) a diazinyl group optionally substituted with X and Y,

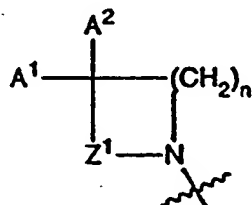
n) a triazinyl group optionally substituted with X and Y,

o) a quinolinyl group optionally substituted with X and Y,

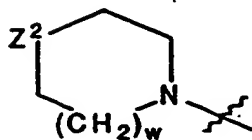
p) a quinoxalinyl group optionally substituted with X and Y,

q) a naphthyridinyl group optionally substituted with X and Y,

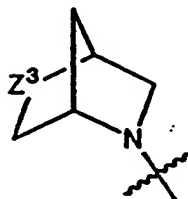
r)



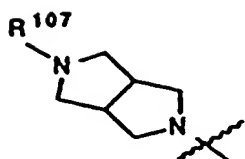
s)



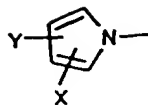
t)



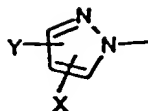
u)



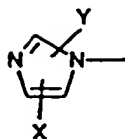
v)



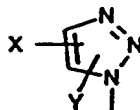
w)



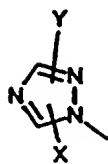
x)



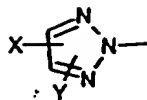
y)



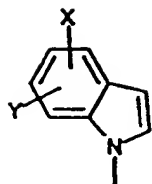
z)



aa)

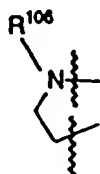


bb)



or,

Q and R₂₄ taken together are



wherein Z¹ is

- a) -CH₂-,
- b) -CH(R¹⁰⁴)-CH₂-,
- c) -C(O)-, or
- d) -CH₂CH₂CH₂-;

wherein Z² is

- a) -O₂S-,
- b) -O-,
- c) -N(R¹⁰⁷)-,
- d) -OS-, or
- e) -S-;

wherein Z³ is

- a) -O₂S-,
- b) -O-,
- c) -OS-, or
- d) -S-;

wherein A¹ is

- a) H-, or
- b) CH₃;

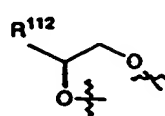
wherein A² is

- a) H-,
- b) HO-,
- c) CH₃-,
- d) CH₃O-,
- e) R¹⁰²O-CH₂-C(O)-NH-
- f) R¹⁰³O-C(O)-NH-,
- g) (C₁-C₂)alkyl-O-C(O)-,
- h) HO-CH₂-,
- i) CH₃O-NH-,
- j) (C₁-C₃)alkyl-O₂C-
- k) CH₃-C(O)-,
- l) CH₃-C(O)-CH₂-,

m)  , or

n)  ,

A¹ and A² taken together are:

a)  ,

b)  , or



wherein R¹⁰² is

- a) H-,
- b) CH₃-,
- c) phenyl-CH₂-, or
- d) CH₃C(O)-;

wherein R¹⁰³ is

- a) (C₁-C₃)alkyl-, or
- b) phenyl-;

wherein R¹⁰⁴ is

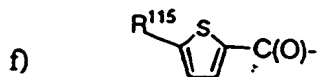
- a) H-, or
- b) HO-;

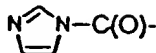
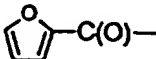
wherein R¹⁰⁵ is

- a) H-,
- b) (C₁-C₃)alkyl-,
- c) CH₂ = CH-CH₂-, or
- d) CH₃-O-(CH₂)₂-;

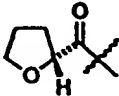
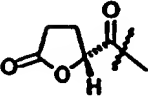
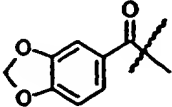
wherein R¹⁰⁶ is

- a) CH₃-C(O)-,
- b) H-C(O)-,
- c) Cl₂CH-C(O)-,
- d) HOCH₂-C(O)-,
- e) CH₃SO₂-,



- g) $\text{F}_2\text{CHC(O)-}$,
- h)  ,
- i) $\text{H}_3\text{C-C(O)-O-CH}_2\text{-C(O)-}$,
- j) $\text{H-C(O)-O-CH}_2\text{-C(O)-}$,
- k)  ,
- l) $\text{HC}\equiv\text{C-CH}_2\text{O-CH}_2\text{-C(O)-}$, or
- m) $\text{phenyl-CH}_2\text{-O-CH}_2\text{-C(O)-}$;

wherein R^{107} is

- a) $\text{R}^{102}\text{O-C(R}^{110}\text{)(R}^{111}\text{)-C(O)-}$,
- b) $\text{R}^{103}\text{O-C(O)-}$,
- c) $\text{R}^{108}\text{-C(O)-}$,
- d)  ,
- e)  ,
- f) $\text{H}_3\text{C-C(O)-(CH}_2\text{)}_2\text{-C(O)-}$,
- g) $\text{R}^{109}\text{-SO}_2\text{-}$,
- h)  ,
- i) $\text{HO-CH}_2\text{-C(O)-}$,

- j) $R^{116}-(CH_2)_2-$,
- k) $R^{113}-C(O)-O-CH_2-C(O)-$,
- l) $(CH_3)_2N-CH_2-C(O)-NH-$,
- m) $NC-CH_2-$,
- n) $F_2-CH-CH_2-$, or
- o) $R^{150}R^{151}NSO_2$

wherein R^{108} is

- a) $H-$,
- b) $(C_1-C_4)alkyl$,
- c) $aryl-(CH_2)_p$,
- d) CH_2C- ,
- e) Cl_2HC- ,
- f) FH_2C- ,
- g) F_2HC- ,
- h) $(C_3-C_6)cycloalkyl$, or
- i) $CNCH_2-$.

wherein R^{109} is

- a) $alkylC_1-C_4$,
- b) $-CH_2Cl$
- c) $-CH_2CH=CH_2$,
- d) $aryl$, or
- e) $-CH_2CN$;

wherein R^{110} and R^{111} are independently

- a) $H-$,
- b) CH_3- ; or

wherein R^{112} is

- a) $H-$,
- b) $CH_3O-CH_2O-CH_2-$, or
- c) $HOCH_2-$;

wherein R^{113} is

- a) CH_3- ,
- b) $HOCH_2-$,
- c) $(CH_3)_2N$ -phenyl, or
- d) $(CH_3)_2N-CH_2-$;

wherein R^{114} is

- a) $HO-$,
- b) CH_3O- ,
- c) H_2N- ,
- d) $CH_3O-C(O)-O-$.
- e) $CH_3-C(O)-O-CH_2-C(O)-O-$,
- f) phenyl- $CH_2-O-CH_2-C(O)-O-$,
- g) $HO-(CH_2)_2-O-$,
- h) $CH_3O-CH_2-O-(CH_2)_2-O-$, or
- i) CH_3O-CH_2-O- ; wherein R^{113} is

- a) CH_3- ,
- b) $HOCH_2-$,
- c) $(CH_3)_2N$ -phenyl, or
- d) $(CH_3)_2N-CH_2-$;

wherein R^{115} is

- a) $H-$, or
- b) $Cl-$;

wherein R^{116} is

- a) $HO-$
- b) CH_3O- , or
- c) $F-$;

wherein R^{150} and R^{151} are each H or alkyl C_1-C_4 or R^{150} and R^{151} taken together with the nitrogen atom to which each is attached form a monocyclic heterocyclic ring having from 3 to 6 carbon atoms;

B is an unsaturated 4-atom linker having one nitrogen and three carbons;

M is

- a) H,
- b) C₁₋₃ alkyl,
- c) C₃₋₈ cycloalkyl,
- d) -(CH₂)_mOR₁₃, or
- e) -(CH₂)_n-NR₂₁R₂₂;

Z is

- a) O,
- b) S, or
- c) NM;

W is

- a) CH,
- b) N, or
- c) S or O when Z is NM;

Y is

- a) H,
- b) F,
- c) Cl,
- d) Br,
- e) C₁₋₃ alkyl, or
- f) NO₂;

X is

- a) H,
- b) -CN,
- c) OR₂₇,
- d) halo,
- e) NO₂,
- f) tetrazoyl,
- g) -SH,
- h) -S(=O)_rR₄,
- i) -S(=O)₂-N=S(O)_rR₅R₆,

- j) $-\text{SC}(=\text{O})\text{R}_7$,
- k) $-\text{C}(=\text{O})\text{R}_{25}$,
- l) $-\text{C}(=\text{O})\text{NR}_{27}\text{R}_{28}$,
- m) $-\text{C}(=\text{NR}_{23})\text{R}_{25}$,
- n) $-\text{C}(\text{R}_{25})(\text{R}_{28})-\text{OR}_{13}$,
- o) $-\text{C}(\text{R}_{25})(\text{R}_{28})-\text{OC}(=\text{O})\text{R}_{13}$,
- p) $-\text{C}(\text{R}_{28})(\text{OR}_{13})-(\text{CH}_2)_h-\text{NR}_{27}\text{R}_{28}$,
- q) $-\text{NR}_{27}\text{R}_{28}$,
- r) $-\text{N}(\text{R}_{27})\text{C}(=\text{O})\text{R}_7$,
- s) $-\text{N}(\text{R}_{27})-\text{S}(=\text{O})_i\text{R}_7$,
- t) $-\text{C}(\text{OR}_{14})(\text{OR}_{15})\text{R}_{28}$,
- u) $-\text{C}(\text{R}_{25})(\text{R}_{16})-\text{NR}_{27}\text{R}_{26}$, or
- v) C_{1-8} alkyl substituted with one or more halos, OH, =O other than at alpha position, $-\text{S}(=\text{O})_i\text{R}_{17}$, $-\text{NR}_{27}\text{R}_{28}$, C_{2-5} alkenyl, C_{2-5} alkynyl, or C_{3-8} cycloalkyl;

R_4 , R_5 , R_6 , R_7 , R_{13} , R_{14} , R_{15} , R_{16} , and R_{17} are the same as defined above;

R_{25} is

- a) H,
- b) C_{1-8} alkyl optionally substituted with one or more halos, C_{3-8} cycloalkyl, C_{1-4} alkyl substituted with one or more of $-\text{S}(=\text{O})_i\text{R}_{17}$, $-\text{OR}_{13}$, or $\text{OC}(=\text{O})\text{R}_{13}$, $\text{NR}_{27}\text{R}_{28}$, or
- c) C_{2-6} alkenyl optionally substituted with CHO, or CO_2R_{13} ;

R_{26} is

- a) R_{28} , or
- b) $\text{NR}_{27}\text{R}_{28}$;

R_{27} and R_{28} at each occurrence are the same or different and are

- a) H,
- b) C_{1-8} alkyl,
- c) C_{3-8} cycloalkyl,
- d) $-(\text{CH}_2)_m\text{OR}_{13}$.

- e) $-(CH_2)_1-NR_{21}R_{22}$, or
- f) R_{27} and R_{28} taken together are $-(CH_2)_2O(CH_2)_2$, $-(CH_2)_1CH(COR_7)$, or $-(CH_2)_2N(CH_2)_2(R_7)$;

R_{29} is

- a) $-NR_{27}R_{28}$,
- b) $-OR_{27}$, or
- c) $-NHC(=O)R_{28}$;

wherein R_{30} is

- a) H ,
- b) C_{1-6} alkyl optionally substituted with one or more halos, or
- c) C_{1-6} alkyl optionally substituted with one or more OH , or C_{1-6} alkoxy,

wherein E is

- a) NR_{39} ,
- b) $-S(=O)_2$, or
- c) O ;

R_{38} is

- a) H ,
- b) C_{1-6} alkyl,
- c) $-(CH_2)_4$ -aryl, or
- d) halo;

R_{39} is

- a) H ,
- b) C_{1-6} alkyl optionally substituted with one or more OH , halo, or $-CN$,
- c) $-(CH_2)_4$ -aryl,
- d) $-CO_2R_{40}$,
- e) $-COR_{41}$,
- f) $-C(=O)-(CH_2)_4-C(=O)R_{40}$,
- g) $-S(=O)_2-C_{1-6}$ alkyl,
- h) $-S(=O)_2-(CH_2)_4$ -aryl, or
- i) $-(C=O)_7$ -Het;

R_{40} is

- a) H,
- b) C_{1-6} alkyl optionally substituted with one or more OH, halo, or -CN,
- c) $-(CH_2)_q$ -aryl, or
- d) $-(CH_2)_q$ -OR₄₂;

R_{41} is

- a) C_{1-6} alkyl optionally substituted with one or more OH, halo, or -CN,
- b) $-(CH_2)_q$ -aryl, or
- c) $-(CH_2)_q$ -OR₄₂;

R_{42} is

- a) H,
- b) C_{1-6} alkyl,
- c) $-(CH_2)_q$ -aryl, or
- d) $-C(=O)-C_{1-6}$ alkyl;

aryl is

- a) phenyl,
- b) pyridyl, or
- c) naphthyl; a to c optionally substituted with one or more halo, -CN, OH, SH, C_{1-6} alkyl, C_{1-6} alkoxy, or C_{1-6} alkylthio;

wherein R_{43} is

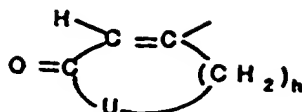
- a) H,
- b) C_{1-2} alkyl,
- c) F, or
- d) OH;

R_{44} is

- a) H,
- b) CF_3 ,
- c) C_{1-3} alkyl optionally substituted with one or more halo,
- d) phenyl optionally substituted with one or more halo,

- e) R_{44} and R_{45} taken together are a 5-, 6-, or 7-membered ring of the formula,

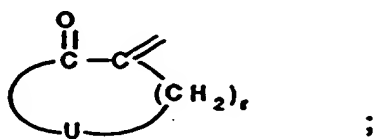
or



- f) R_{44} and R_{45} taken together are $-(CH_2)_k-$, when R_{46} is an electron-withdrawing group;

R_{45} and R_{46} at each occurrence are the same or different and are

- an electron-withdrawing group,
- H ,
- CF_3 ,
- C_{1-3} alkyl optionally substituted with one halo,
- phenyl, provided at least one of R_{45} or R_{46} is an electron-withdrawing group, or
- R_{45} and R_{46} taken together are a 5-, 6-, 7-membered ring of the formula



U is

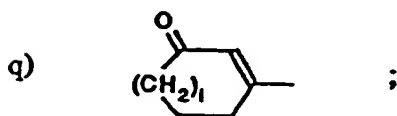
- CH_2 ,
- O ,
- S , or
- NR_{47} ;

R_{47} is

- a) H , r
- b) C_{1-5} alkyl;

wherein R_{48} is

- a) carboxyl,
- b) halo,
- c) $-CN$,
- d) mercapto,
- e) formyl,
- f) CF_3 ,
- g) $-NO_2$,
- h) C_{1-6} alkoxy,
- i) C_{1-6} alkoxy carbonyl,
- j) C_{1-6} alkylthio,
- k) C_{1-6} acyl,
- l) $-NR_{49}R_{50}$,
- m) C_{1-6} alkyl optionally substituted with OH , C_{1-5} alkoxy, C_{1-5} acyl, or $-NR_{49}R_{50}$,
- n) C_{2-6} alkenylphenyl optionally substituted with one or two R_{51} ,
- o) phenyl optionally substituted with one or two R_{51} ,
- p) a 5-, or 6-membered (un)saturated heterocyclic moiety having one to three atoms selected from the group consisting of S , N , and O , optionally substituted with one or two R_{51} , or



R_{49} and R_{50} at each occurrence are the same or different and are

- a) H ,
- b) C_{1-4} alkyl,
- c) C_{5-6} cycloalkyl, or

- d) R_{49} and R_{50} taken together with the nitrogen atom is a 5-, 6-membered saturated heterocyclic moiety which optionally has a further hetero atom selected from the group consisting of S, N, and O, and can in turn be optionally substituted with, including on the further nitrogen atom, C_{1-3} alkyl, or C_{1-3} acyl;

R_{51} is

- a) carboxyl,
- b) halo,
- c) $-CN$,
- d) mercapto,
- e) formyl,
- f) CF_3 ,
- g) $-NO_2$,
- h) C_{1-6} alkoxy,
- i) C_{1-6} alkoxy carbonyl,
- j) C_{1-6} alkylthio,
- k) C_{1-6} acyl,
- l) C_{1-6} alkyl optionally substituted with OH, C_{1-6} alkoxy, C_{1-6} acyl, or $-NR_{49}R_{50}$,
- m) phenyl,
- n) $-C(=O)NR_{52}R_{53}$,
- o) $-NR_{49}R_{50}$,
- p) $-N(R_{52})(-SO_2R_{54})$,
- q) $-SO_2-NR_{52}R_{53}$, or
- r) $-S(=O)_2R_{54}$;

R_{52} and R_{53} at each occurrence are the same or different and are

- a) H,
- b) C_{1-6} alkyl, or
- c) phenyl;

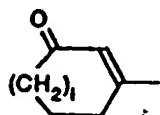
R_{54} is

- a) C_{1-4} alkyl, or
- b) phenyl optionally substituted with C_{1-4} alkyl;

wherein R_{55} is

- a) carboxyl,
- b) halo,
- c) -CN,
- d) mercapto,
- e) formyl,
- f) CF_3 ,
- g) $-NO_2$,
- h) C_{1-6} alkoxy,
- i) C_{1-6} alkoxy carbonyl,
- j) C_{1-6} alkythio
- k) C_{1-6} acyl,
- l) $-NR_{56}R_{57}$,
- m) C_{1-6} alkyl optionally substituted with OH, C_{1-5} alkoxy, C_{1-5} acyl, or $-NR_{56}R_{57}$,
- n) C_{2-8} alkenylphenyl optionally substituted with one or two R_{58} ,
- o) phenyl optionally substituted with one or two R_{58} ,
- p) a 5- or 6-membered (un)saturated heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O, optionally substituted with one or two R_{58} , or

q)



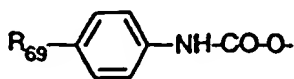
R_{56} and R_{57} at each occurrence are the same or different and are

- a) H,
- b) formyl,

- c) C_{1-4} alkyl,
- d) C_{1-4} acyl,
- e) phenyl,
- f) C_{3-6} cycloalkyl, or
- g) R_{66} and R_{67} taken together with the nitrogen atom is a 5-, 6-membered saturated heterocyclic moiety which optionally has a further hetero atom selected from the group consisting of S, N, and O, and can in turn be optionally substituted with, including on the further nitrogen atom, phenyl, pyrimidyl, C_{1-3} alkyl, or C_{1-3} acyl;

R_{58} is

- a) carboxyl,
- b) halo,
- c) $-CN$,
- d) mercapto,
- e) formyl,
- f) CF_3 ,
- g) $-NO_2$,
- h) C_{1-6} alkoxy,
- i) C_{1-6} alkoxycarbonyl,
- j) C_{1-6} alkythio,
- k) C_{1-6} acyl,
- l) phenyl,
- m) C_{1-6} alkyl optionally substituted with OH, azido, C_{1-3} alkoxy, C_{1-3} acyl, $-NR_{65}R_{66}$, $-SR_{67}$, $-O-SO_2R_{68}$, or



- n) $-C(=O)NR_{69}R_{60}$,
- o) $-NR_{66}R_{67}$,
- p) $-N(R_{63})(-SO_2R_{64})$,

- q) $-\text{SO}_2-\text{NR}_{65}\text{R}_{60}$,
- r) $-\text{S}(=\text{O})_2\text{R}_{64}$,
- s) $-\text{CH}=\text{N}-\text{R}_{61}$, or
- t) $-\text{CH}(\text{OH})-\text{SO}_2\text{R}_{64}$;

R_{64} is the same as defined above;

R_{59} and R_{60} at each occurrence are the same or different and are

- a) H,
- b) C_{1-6} alkyl,
- c) phenyl, or
- d) tolyl;

R_{61} is

- a) OH,
- b) benzyloxy,
- c) $-\text{NH}-\text{C}(=\text{O})-\text{NH}_2$,
- d) $-\text{NH}-\text{C}(=\text{S})-\text{NH}_2$, or
- e) $-\text{NH}-\text{C}(=\text{NH})-\text{NR}_{62}\text{R}_{63}$;

R_{62} and R_{63} at each occurrence are the same or different and are

- a) H, or
- b) C_{1-4} alkyl optionally substituted with phenyl or pyridyl;

R_{64} is

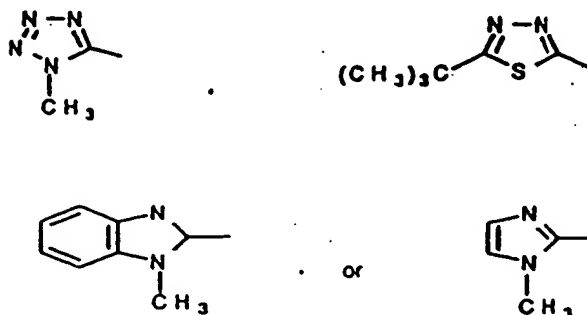
- a) H, or
- b) a sodium ion;

R_{65} and R_{66} at each occurrence are the same or different and are

- a) H,
- b) formyl,
- c) C_{1-4} alkyl,
- d) C_{1-4} acyl,
- e) phenyl,
- f) C_{3-6} cycloalkyl,

- g) R_{65} and R_{66} taken together are a 5-, 6-membered saturated heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O, optionally substituted with, including on the nitrogen atom, phenyl, pyrimidyl, C_{1-3} alkyl, or C_{1-3} acyl,
- h) $-P(O)(OR_{70})(OR_{71})$, or
- i) $-SO_2-R_{72}$;

R_{67} is



R_{68} is C_{1-3} alkyl;

R_{69} is

- a) C_{1-6} alkoxy carbonyl, or
- b) carboxyl;

R_{70} and R_{71} at each occurrence are the same or different and are

- a) H, or
- b) C_{1-3} alkyl;

R₇₂ is

- a) methyl,
- b) phenyl, or
- c) tolyl;

wherein K is

- a) O, or
- b) S;

R₇₃, R₇₄, R₇₅, R₇₆, and R₇₇ at each occurrence are the same or different and are

- a) H,
- b) carboxyl,
- c) halo,
- d) -CN,
- e) mercapto,
- f) formyl,
- g) CF₃,
- h) -NO₂,
- i) C₁₋₆ alkoxy,
- j) C₁₋₆ alkoxycarbonyl,
- k) C₁₋₆ alkythio,
- l) C₁₋₆ acyl,
- m) -NR₇₈R₇₉,
- n) C₁₋₆ alkyl optionally substituted with OH, C₁₋₅ alkoxy, C₁₋₅ acyl, -NR₇₈R₇₉, -N(phenyl)(CH₂-CH₂-OH), -O-CH(CH₃)(OCH₂CH₃), or -O-phenyl-[para-NHC(=O)CH₃],
- o) C₂₋₆ alkenylphenyl optionally substituted with R₆₁,
- p) phenyl optionally substituted with R₆₁, or
- q) a 5-, or 6-membered (un)saturated heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O, optionally substituted with R₆₁;

R₆₁ is the same as defined above;

R_{75} and R_{76} at each occurrence are the same or different and are

- a) H,
- b) C_{1-4} alkyl,
- c) phenyl, or
- d) R_{78} and R_{79} taken together with the nitrogen atom is a 5-, 6-membered saturated heterocyclic moiety which optionally has a further hetero atom selected from the group consisting of S, N, and O, and can in turn be optionally substituted with, including on the further nitrogen atom, C_{1-3} alkyl, or C_{1-3} acyl;

wherein T is

- a) O,
- b) S, or
- c) SO_2 ;

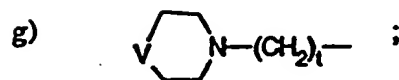
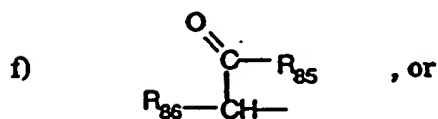
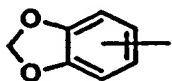
R_{75} , R_{76} , and R_{77} are the same as defined above;

R_{80} is

- a) H,
- b) formyl,
- c) carboxyl,
- d) C_{1-6} alkoxy carbonyl,
- e) C_{1-6} alkyl,
- f) C_{2-6} alkenyl,
wherein the substituents (e) and (f) can be optionally substituted with OH, halo, C_{1-6} alkoxy, C_{1-6} acyl, C_{1-6} alkylthio or C_{1-6} alkoxy carbonyl, or phenyl optionally substituted with halo,
- g) an aromatic moiety having 6 to 10 carbon atoms optionally substituted with carboxyl, halo, -CN, formyl, CF_3 , -NO₂, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} acyl, C_{1-6} alkylthio, or C_{1-6} alkoxy carbonyl;
- h) $-NR_{81}R_{82}$,
- i) $-OR_{90}$,
- j) $-S(=O)_i-R_{91}$,
- k) $-SO_2-N(R_{92})(R_{93})$, or
- l) a radical of the following formulas:

R_{31} and R_{32} at each occurrence are the same or different and are

- a) H,
- b) C_{3-6} cycloalkyl,
- c) phenyl,
- d) C_{1-6} acyl,
- e) C_{1-8} alkyl optionally substituted with OH, C_{1-6} alkoxy which can be substituted with OH, a 5-, or 6-membered aromatic heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O, phenyl optionally substituted with OH, CF_3 , halo, $-NO_2$, C_{1-4} alkoxy, $-NR_{33}R_{34}$, or



V is

- a) O,
- b) CH_2 , or
- c) NR_{37} ;

R_{33} and R_{34} at each occurrence are the same or different and are

- a) H, or
- b) C_{1-4} alkyl;

R_{35} is

- a) OH,
- b) C_{1-4} alkoxy, or
- c) $-NR_{38} R_{39}$;

 R_{36} is

- a) H, or
- b) C_{1-7} alkyl optionally substituted with indolyl, OH, mercaptyl, imidazolyl, methylthio, amino, phenyl optionally substituted with OH, $-C(=O)-NH_2$, $-CO_2H$, or $-C(=NH)-NH_2$;

 R_{37} is

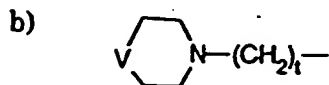
- a) H,
- b) phenyl, or
- c) C_{1-6} alkyl optionally substituted by OH;

 R_{38} and R_{39} at each occurrence are the same or different and are

- a) H,
- b) C_{1-5} alkyl
- c) C_{3-6} cycloalkyl, or
- d) phenyl;

 R_{30} is

- a) C_{1-4} alkyl optionally substituted with C_{1-6} alkoxy or C_{1-6} hydroxy, C_{3-6} cycloalkyl, a 6-membered aromatic optionally benzo-fused heterocyclic moiety having one to three nitrogen atoms, which can in turn be substituted with one or two $-NO_2$, CF_3 , halo, $-CN$, OH, C_{1-5} alkyl, C_{1-5} alkoxy, or C_{1-5} acyl;



- c) phenyl, or
- d) pyridyl;

R_{91} is

- a) C_{1-16} alkyl,
- b) C_{2-16} alkenyl,
wherein the substituents (a) and (b) can be optionally substituted with C_{1-6} alkoxy carbonyl, or a 5-, 6-, 7-membered aromatic heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O,
- c) an aromatic moiety having 6 to 10 carbon atoms, or
- d) a 5-, 6-, 7-membered aromatic heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O,
wherein the substituents (c) and (d) can be optionally substituted with carboxyl, halo, -CN, formyl, CF_3 , $-NO_2$, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} acyl, C_{1-6} alkylthio, or C_{1-6} alkoxy carbonyl;

R_{32} and R_{33} at each occurrence are the same or different and are

- a) H,
- b) phenyl,
- c) C_{1-6} alkyl, or
- d) benzyl;

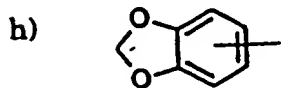
R_{34} and R_{35} at each occurrence are the same or different and are

- a) H,
- b) OH,
- c) C_{1-6} alkyl optionally substituted with $-NR_{33}$ R_{34} , or
- d) R_{34} and R_{35} taken together are =O;

R_{36} is

- a) an aromatic moiety having 6 to 10 carbon atoms,
- b) a 5-, or 6-membered aromatic optionally benzo-fused heterocyclic moiety having one to three atoms selected from the group consisting of S, N, and O,
wherein the substituents (a) and (b) which can in turn be substituted with one or three $-NO_2$, CF_3 , halo, -CN, OH, phenyl, C_{1-5} alkyl, C_{1-5} alkoxy, or C_{1-5} acyl,

- c) morpholinyl,
- d) OH,
- e) C₁₋₆ alkoxy,
- f) -NR₃₃R₃₄,
- g) -C(=O)-R₃₇, or



R₃₇ is

- a) morpholinyl,
- b) OH, or
- c) C₁₋₆ alkoxy;

h is 1, 2, or 3;

i is 0, 1, or 2;

j is 0 or 1;

k is 3, 4, or 5;

l is 2 or 3;

m is 4 or 5;

n is 0, 1, 2, 3, 4, or 5;

p is 0, 1, 2, 3, 4, or 5; with the proviso that n and p together are 1, 2, 3, 4, or 5;

q is 1, 2, 3, or 4;

r is 2, 3, or 4;

t is 0, 1, 2, 3, 4, 5, or 6;

u is 1 or 2;

w is 0, 1, 2, or 3.

Claim 2. (Original) The method according to claim 1 wherein said mammal is a human.

Claim 3. (Original) The method according to claim 1 wherein the compound is administered in the range of about 0.1 to about 100 mg/kg of mammal body weight/day.

Claim 4. (Original) The method according to claim 1 wherein the compound is administered orally, nasally, parenterally, topically, transdermally, or rectally.

Claim 5. (Original) The method according to claim 1 wherein said compound is selected from the group consisting of:

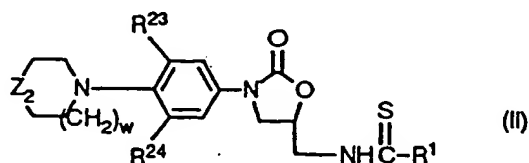
(S)-trans-[[3-[3-Fluoro-4-(tetrahydro-1-oxido-2H-thiopyran-4-yl)phenyl]-2-oxo-5-oxazolidinyl]methyl]thiourea; and

(S)-N-[[3-[3-Fluoro-4-(4-thiomorpholinyl)phenyl]-2-oxo-5-oxazolidinyl]methyl]thioacetamide, thiomorpholine S-oxide; and

pharmaceutically acceptable salts thereof.

Claim 6. (Currently Amended) The method according to claim 1 wherein said mammal is not suffering from an ~~antibacterial~~ infection.

Claim 7. (Previously Presented) A method of treating osteoporosis or bone resorption in a vertebrate mammal in need thereof comprising the administering to the vertebrate mammal an effective amount of a compound of formula



wherein Z_2 is $-O_2S-$, $-O-$, $-N(R^{107})-$, $-OS-$, or $-S-$;

w is 0, 1, 2, or 3;

R^{23} and R^{24} are the same or different and can be H or F; and

R^1 is H, NH_2 , $NHalkylC_1-C_4$; $N(alkylC_1-C_4)_2$; ;

$alkylC_1-C_4$; $OalkylC_1-C_4$; $SalkylC_1-C_4$; $alkylC_1-C_4$ substituted with 1-3F, 1-2Cl, CN, or $-COOalkylC_1-C_4$, or $cycloalkylC_3-C_6$, wherein in each occurrence of the alkyl group may be straight or branched; and R^{107} is

- a) $R^{102}O-C(R^{110})(R^{111})-C(O)-$,
- b) $R^{103}O-C(O)-$,
- c) $R^{108}-C(O)-$,
- d) $R^{109}-SO_2-$,
- e) $NC-CH_2-$,
- f) $FCHCH_2-$, or
- g) $R^{150}R^{151}NSO_2-$;

wherein R^{102} is H, CH_3- , $phenyl-CH_2-$, or $CH_3C(O)$; each of R^{110} and R^{111} is selected from H or CH_3 ; R^{103} is $alkylC_1-C_3$ or $phenyl$; R^{108} is H, $alkylC_1-C_4$, $aryl(CH_2)_{0-3}$, $CNCH_2-$, $ClCH_2-$, Cl_2HC- , FH_2C- , F_2HC- , or $cycloalkylC_3-C_6$; R^{150} and R^{151} are the same or different and are selected from H, $alkylC_1-C_4$, or R^{150} and R^{151} taken together with the nitrogen to which each is attached forms a monocyclic heterocyclic ring having from 3 to 6 carbon atoms.

Claim 8. (Original) The method according to claim 7 wherein said mammal is a human.

Claim 9. (Original). The method according to claim 7 wherein the compound is administered in the range of about 0.1 to about 100 mg/kg of mammal body weight/day.

Claim 10. (Original)

Claim 11. (Original)

The method according to claim 7 wherein said compound is selected from the group consisting of:

(S)-trans-[[3-[3-Fluoro-4-(tetrahydro-1-oxido-2H-thiopyran-4-yl)phenyl]-2-oxo-5-oxazolidinyl]methyl]thiourea; and

(S)-N-[[3-[3-Fluoro-4-(4-thiomorpholinyl)phenyl]-2-oxo-5-oxazolidinyl]methyl]thioacetamide, thiomorpholine S-oxide; and

pharmaceutically acceptable salts thereof.

Claim 12. (Currently Amended) The method according to claim 7 wherein said mammal is not suffering from an ~~anti~~bacterial infection.

Claim 13. (Canceled)